

Listing of Claims:

1. (Currently Amended) A high resolution optical imaging system comprising:
more than two optical sensors spaced ~~in a non-uniform manner, each having an aperture of about a meter or less~~ arbitrarily with respect to each other, at least two of the sensors being spaced apart at least about 100 meters, and each sensor producing an output;
and
~~an infrastructure for relaying outputs from each of said sensors~~ communication links connected from the sensors to a data processing system, whereby the communication links relay the outputs from the sensors to the data processing system, and the data processing system is capable of generating an image based on the outputs.
2. (New) The system of claim 1, in which each sensor has an aperture of about a meter or less.
3. (New) The system of claim 2, in which each sensor is a photodiode.
4. (New) The system of claim 1, in which the communication links comprise optical fibers.
5. (New) The system of claim 1, further comprising:
a number of amplifiers, each amplifier connected to one of the sensors;
a number of analog-to-digital converters, each analog-to-digital converter connected to one of the amplifiers; and
one or more memories connected to both the analog-to-digital converters and the communication links, whereby the output of each sensor is sequentially processed by a amplifier and an analog-to-digital converter, and then stored in the one or more memories before being conveyed across a communication link.
6. (New) The system of claim 1, further comprising:
a number of timing sources, each timing source connected to one of the sensors.
7. (New) The system of claim 6, in which each timing source comprises a GPS receiver.

8. (New) The system of claim 1, further comprising:
the data processing system.

9. (New) The system of claim 8, in which the data processing system comprises:
a memory in which the outputs of the sensors are stored;
a correlator connected to the memory and configured to compute correlations between the outputs of the sensors; and
a processor connected to the memory and configured to perform computations on the correlations, whereby an image is produced.

10. (New) The system of claim 9, in which the computations comprise a matrix decomposition.

11. (New) A method for collecting data for high resolution optical imaging, the method comprising:
locating more than two optical sensors spaced arbitrarily with respect to each other, at least two of the sensors being spaced apart at least about 100 meters;
producing with each sensor an output; and
transmitting each output to a data processing system capable of generating images based on the outputs.

12. (New) The method of claim 11, in which, for each sensor, the producing step comprises:
amplifying a signal generated by the sensor;
converting the amplified signal to a digital signal; and
storing the digital signal.

13. (New) The method of claim 11, further comprising:
triggering the producing step to occur at each sensor substantially simultaneously relative to a common optical wavefront arriving at each sensor.

14. (New) The method of claim 11, further comprising:
generating, at the data processing system, an image based on the outputs.

15. (New) The method of claim 14 in which the generating step comprises:
correlating the outputs of the sensors to generate correlations; and
performing computations based on the correlations, whereby an image is produced.
16. (New) The method of claim 15 in which the computations comprise a matrix decomposition.
17. (New) The method of claim 11, further comprising:
minimizing spectral filtering of the outputs of the sensors.